

CLAIMS

1. A device for cooling electronics comprising

(a) a container having a receptacle for receiving an electronic device, the container defining a chamber that is partially filled with a liquid coolant, the container also being capable of receiving a cooling conduit;

(b) a wick structure positioned within the container.

2. The device for cooling electronics of claim 1 wherein the wick structure comprises a first wick structure lining the inside of the outer wall, a second wick structure lining the inside of the inner wall, and a communicating wick structure that periodically connects the first and second wick structures.

3. The device for cooling electronics of claim 2 further comprising at least one condenser plate positioned within the container.

4. The device for cooling electronics of claim 1 further comprising a flow divider positioned within the container opposite the receptacle.

5. The device for cooling electronics of claim 1 wherein the container has an edge capable of receiving a cooling conduit segment.

6. The device for cooling electronics of claim 1 wherein the container has a first wall and a second wall, the second wall defining an annular region capable of receiving a cooling conduit.

7. The device for cooling electronics of claim 1 wherein the receptacle is capable of receiving a cooling conduit so that the container may be inserted into an aperture in a wall of the cooling conduit with the receptacle forming part of the wall of the cooling conduit.

5 8. The device for cooling electronics of claim 7 further comprising a flow separator positioned within the container.

9. The device for cooling electronics of claim 6 wherein a wall of the cooling conduit is a wall of the container.

10. A method for cooling electronics comprising:

(a) providing a container having a receptacle for receiving an electronic device, the container defining a chamber and having an inner wall and an outer wall;

(b) filling the container partially with a liquid coolant such that the liquid coolant does not contact both the inner wall and the outer wall simultaneously;

(c) providing an electronic device;

(d) connecting the electronic device to the receptacle of the container;

(e) generating heat by the electronic device;

(f) transferring heat to the coolant;

(g) connecting a cooling conduit to the container;

(h) forcing air or liquid through the cooling conduit.

11. The method of claim 10 further comprising the step of transferring the heat from vaporized coolant to the air or liquid in the cooling conduit.

12. A device for cooling electronics comprising:

(a) a receptacle having a first and a second surface, the first surface capable of being connected to an electronic device;

5 (b) a wick structure connected to the second surface of the receptacle, wherein the wick structure has at least one ambient vent.

13. The device for cooling electronics of claim 12 wherein the wick structure is saturated in a coolant, the degree of saturation being controlled by a regulator.

10 14. The device for cooling electronics of claim 13 further comprising a coolant reservoir that collects and holds coolant to be supplied to the wick structure.

15 15. The device for cooling electronics of claim 14 further comprising a collecting vent that communicates with each ambient vent.

16. A device for cooling electronics comprising:

(a) a container having a receptacle for receiving an electronic device, the container defining an annular chamber that is partially filled with a liquid coolant, the container having an outer wall and an inner wall, wherein the liquid coolant does not contact both the inner wall and the outer wall simultaneously.

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17. The device for cooling electronics of claim 16 wherein heat generated by an electronic device is transferred to the coolant to cause boiling of the coolant so that vaporized coolant rises away from the electronic device and substantially condenses near the inner wall of the container.

5 18. The device for cooling electronics of claim 16 further comprising at least one condenser plate positioned within the container.

19. The device for cooling electronics of claim 17 further comprising a wick structure capable of returning liquid coolant condensed on the inner wall toward the electronic device.

10 20. The device for cooling electronics of claim 16 further comprising a flow divider positioned within the chamber opposite the receptacle.

15 21. The device for cooling electronics of claim 16 further comprising a flow separator positioned within the chamber, wherein the flow separator divides streams of vaporized coolant between the inner and outer walls of the container.